The following table defines the CMAC_cmas_geocode value assignments.

Table 10-7 CMAC_cmas_geocode Assignments

CMAC_cmas geocode	Definition
00000	Not Used
00001 thru 99999	For Identification of states and counties
US000	Entire United States
US001	FEMA Region 1 (Maine, Vermont, New Hampshire, Rhode Island, Massachusetts, and Connecticut)
US002	FEMA Region 2 (New York, New Jersey, Puerto Rico, and Virgin Islands)
US003	FEMA Region 3 (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia)
US004	FEMA Region 4 (Alabama, Florida, Georgia, North Carolina, South Carolina, Tennessee, Kentucky, and Mississippi)
US005	FEMA Region 5 (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin)
US006	FEMA Region 6 (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas)
US007	FEMA Region 7 (Iowa, Kansas, Missouri, and Nebraska)
US008	FEMA Region 8 (Colorado, Montana, North Dakota, South Dakota, and Utah)
US009	FEMA Region 9 (Arizona, California, Hawaii, Nevada, American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Republic of the Marshall Islands, and Federated States of Micronesia)
US010	FEMA Region 10 (Alaska, Idaho, Oregon, and Washington)
US011 thru US100	Not Assigned
US101	National Weather Service (NWS) Central Region (Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, and Nebraska)
US102	National Weather Service (NWS) Eastern Region (Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, and Vermont)
US103	National Weather Service (NWS) Southern Region (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, New Mexico, Oklahoma, Puerto Rico, Tennessee, and Texas)
US104	National Weather Service (NWS) Western Region (Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, and Washington)
US105	National Weather Service (NWS) Alaska Region (Alaska)

CMAC_cmas geocode	Definition
US106	National Weather Service (NWS) Pacific Region (Hawaii, Guam, America Samoa)
US107 thru US999	Not Assigned

10.4.6 Definition of CMAC Response Codes

The CMSAAC recommends the following as the response codes that may be returned from the CMSP Gateway to the Alert Gateway in the CMAC_note element in response a received CMAS message via the Reference Point C interface:

CMAC_Error_100 Invalid Alert Gateway ID
CMAC_Error_101 Unsupported protocol version
CMAC_Error_102 Segment XXX missing
CMAC_Error_103 Invalid message length
CMAC_Error_104 Mandatory element XXX missing
CMAC_Error_105 Conditional element XXX missing which is required based upon value of element YYYY
CMAC_Error_106 Optional element XXX not allowed
CMAC_Error_107 Unrecognized value in element XXX
CMAC_Error_108 Value in element XXX is out of acceptable range
CMAC_Error_109 Value XXX of element YYY not supported
CMAC_Error_110 Invalid length of element XXX
CMAC_Error_111 Expiration time greater than allowed interval
CMAC_Error_112 Failure to convert text message into alphabet encoding scheme
CMAC_Error_113 Text encoding not compatible with specified text language
CMAC_Error_114 Special handling element not consistent with message content
CMAC_Error_115 Polygon element contains more than maximum number of coordinates
CMAC_Error_200 Failure to retrieve additional alert info from Alert Gateway

CMAC_Error_201 Message received after expiration time
CMAC_Error_203 Message update failed
CMAC_Error_204 Message cancellation failed

CMAC_Error_300 Alert message failed due to insufficient system storage
CMAC_Error_301 CMSP server error
CMAC_Error_302 Maximum number of sessions reached (if C interface is session based)

CMAC_Resp_400 CMAS test successful
CMAC_Resp_401 CMAS test failed due to XXX

CMAC_Resp_500 Transient error on CMSP Gateway – Discontinue transmission of alerts
CMAC_Resp_501 Resume transmission of alerts to CMSP Gateway
CMAC_Resp_502 Keep alive message response

10.4.7 Example CMAS "C" Interface Alert Messages

As an example of a CMAS Alert Message, consider the following CAP alert message from the National Weather Service:

```
<cap:alert xmlns:cap="http://www.incident.com/cap/1.0">
        <cap:identifier>NOAA-NWS-ALERTS Arizona 2007-08-01T18:22:17-04:00</cap:identifier>
        <cap:sender>w-nws.webmaster@noaa.gov</cap:sender>
        <cap:sent>2007-08-01T18:22:17-04:00</cap:sent>
        <cap:status>Actual</cap:status>
        <cap:msgType>Alert</cap:msgType>
        <cap:scope>Public</cap:scope>
        <cap:note>Current Watches, Warnings and Advisories for Arizona Issued by the National
        Weather Service</cap:note>
        <cap:references>http://www.weather.gov/alerts/az.html</cap:references>
 <cap:info>
        <cap:category>Met</cap:category>
        <cap:event>Flash Flood Warning</cap:event>
        <cap:urgency>Expected</cap:urgency>
        <cap:severity>Severe</cap:severity>
        <cap:certainty>Likely</cap:certainty>
        <cap:effective>2007-08-01T22:11:00</cap:effective>
        <cap:expires>2007-08-01T23:15:00</cap:expires>
        <cap:headline>Flash Flood Warning</cap:headline>
        <cap:description>FLASH FLOOD WARNING AZC005-012315- BULLETIN - EAS ACTIVATION
        REQUESTED FLASH FLOOD WARNING NATIONAL WEATHER SERVICE FLAGSTAFF AZ
        311 PM MST WED AUG 1 2007 THE NATIONAL WEATHER SERVICE IN FLAGSTAFF HAS
        ISSUED A * FLASH FLOOD WARNING FOR... SOUTH CENTRAL COCONINO COUNTY IN
        NORTH CENTRAL ARIZONA... * UNTIL 415 PM MST * AT 306 PM MST...NATIONAL
        WEATHER SERVICE DOPPLER RADAR INDICATED FLASH FLOODING FROM A
        THUNDERSTORM OVER THE WARNED AREA. * LOCATIONS IN THE WARNING INCLUDE
        HIGHWAY 89 THROUGH OAK CREEK CANYON BETWEEN SLIDE ROCK STATE PARK
        AND MIDGELY BRIDGE. THE HEAVY RAINS WILL LIKELY TRIGGER LIFE-THREATENING
        ROCKSLIDES... MUDSLIDES...AND DEBRIS FLOWS NEAR THE BRINS FIRE BURN AREA
        IN OAK CREEK CANYON...AS WELL AS FLOODING OF CREEKS...ROADS...AND
        NORMALLY DRY WASHES. DO NO ATTEMPT TO DRIVE THROUGH THIS AREA UNTIL
        THE THREAT HAS DIMINISHED. LAT...LON 3488 11177 3489 11169 3499 11169 3498 11177
$$ DB</cap:description>
        <cap:web>http://www.weather.gov/alerts/AZ.html#AZC005.FGZFFWFGZ.221100</cap:web>
        <cap:area>
                <cap:areaDesc>Kaibab Plateau, Marble, Glen Canyons, Grand Canyon Country,
        Coconino Plateau, Northeast Plateaus, Mesas Hwy, Little Colorado River Valley in,
        Western Mogollon Rim, Eastern Mogollon Rim, Oak Creek, Sycamore Canyons,
        Northeast Plateaus, Mesas Sou (Arizona)</cap:areaDesc>
                <cap:geocode>004005</cap:geocode>
        </cap:area>
 </cap:info>
        </cap:alert>
```

This Alert Gateway would construct a CMAS "C" Interface message based on this CAP alert as follows:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CMAS_alert xmlns = "urn:xxx:xxx:xx:xxx:cmac:1.0">
  <CMAC_protocol_version>1.0</ CMAC_protocol_version >
  <CMAC_alert_gateway_id>http://cmas_alert_gateway.gov</ CMAC_alert_gateway_id >
  <CMAC_identifier>1056</identifier>
  <CMAS_sender> w-nws.webmaster@noaa.gov </CMAS_sender>
  <CMAC_sent_date_time>2003-06-17T14:57:00-07:00</CMAC_sent_date_time>
  <CMAC_status>Actual</CMACstatus>
  <CMAC_message_type>Alert</CMAC_message_type>
  <CMAC_alert_gateway_id>http://cmas_alert_gateway.gov/CMAM1056</CMAC_alert_gateway_id >
  <CMAC_alert_info>
    <CMAC_category>Met</CMAC_category>
    <CMAC_severity>Severe</CMAC_severity>
    <CMAC_urgency>Expected</CMAC_urgency>
    <CMAC_certainty>Likely</CMAC_certainty>
    <CMAC_expires_date_time>2007-08-01T23:15:00</CMAC_expires_dalt_time>
    <CMAC_text_language>English</ CMAC_text_language >
    <CMAC_text_encoding>ISO-6739-2</ CMAC_text_encoding>
    <CMAC_text_message_length>56</ CMAC_text_message_length>
    <CMAC_message>Severe Weather Warning until 4:15pm MST</ CMAC_message>
    <CMAC_area>
      <CMAC_area_description>Kaibab Plateau, Marble, Glen Canyons, Grand Canyon Country,
      Coconino Plateau, Northeast Plateaus, Mesas Hwy, Little Colorado River Valley in,
      Western Mogollon Rim, Eastern Mogollon Rim, Oak Creek, Sycamore Canyons,
      Northeast Plateaus, Mesas Sou (Arizona)</CMAC_area_description>
      <CMAC_geocode>004005</CMAC_geocode>
    </CMAC_area>
  </CMAC_alert_info>
</CMAC_alert>
```

This CMAM would be broadcast as:

Severe Weather Warning in this area until 4:15pm MST NWS

10.5 Reference Point E Protocols

The protocols that will be used for Reference Point E are dependent upon the capabilities of the delivery technology or technologies that have been selected by the CMSP.

The following is the CMA specific information that must be delivered over Reference Point "E" to support the CMAS text profile; mapping of this information to the delivery technology is beyond the scope of the CMSAAC:

Table 10-8 Reference Point E Protocol Elements

Parameter	Function
CMAE_protocol_version	CMAE protocol version
CMAE_identifier	A number uniquely identifying this message.

Parameter	Function
CMAE_alert_handling	Identifies special handling for the alert: – *Presidential Alert.* – Child Abduction Emergency (i.e., AMBER Alert) Additional values are reserved for future use.
CMAE_alert_type	Alert message is new, update or cancel CMAS alert
CMAE_language	Language of the alert message in the CMAE_Alert_Text parameter.
CMAE_char_set	Character set for the alert message in the CMAE_Alert_Text parameter (e.g., GSM 7-bit encoding, ISO 639-2, UCS-2, UTF-16)

11 Annex A – Anticipated Peak & Average CMAS Traffic Volume

In 2006, there was a total of 9239 tornado and flash flood warnings in the U.S. as reported by the National Weather Service. The following has a breakdown by state of these warnings:

Table 11-1 Table of Total 2006 Tornado & Flash Flood Warnings by State

STATE	TOR	FFW
AL	223	109
AR	152	142
AZ	11	292
CA	13	142
CO	54	68
CT	2	24
DC	0	10
DE	4	15
FL	106	24
GA	99	36
HI	1	163
IA	66	26
ID	24	16
IL	325	164
IN	212	175
KS	206	80
KY	152	291
LA	169	100
MA	1	11
MD	11	116
ME	4	27
MI	23	17
MN	70	46
MO	467	287
MS	300	82
MT	2	11
NC	108	171
ND	70	19
NE	67	27
NH	1	2
NJ	5	56
NM	11	167
NV	4	29
NY	14	218
OH	55	139
OK	112	34
OR	1	4
PA	22	326
SC	79	18
SD	71	24
TN	209	141
TX	382	753
UT	1	100
VA	54	362
VT	2	5
WA	0	7
WI	74	37
WV	2	64
WY	9	12
TOTAL	4050	5189

It can be assumed that these warnings account for approximately 50% of all warnings issued in 2006. In addition, there are approximately 1200 child abduction emergency/Amber Alerts per year.

Given the above statistics and adding a factor of uncertainty in, the anticipated initial yearly CMAMs for a single language of English which meet the criteria for CMAs is assumed to be 25,000 alerts per year. This number is expected to grow due to increased usage and due to the potential support of additional languages in the future.

On a monthly basis, the tornado and flash flood data is as follows:

Table 11-2 Table of 2006 Tornado & Flash Flood Warnings by State by Month

2006	Tornado	Flash Flood	Total
January	134	109	243
February	53	48	101
March	769	398	1167
April	916	238	1154
May	520	476	996
June	281	1124	1405
July	163	946	1109
August	211	703	914
September	407	530	937
October	290	370	660
November	202	186	388
December	104	61	165
Total '06	4050	5189	9239

Using these actual alert statistics as a percent of the total per month, and applying to the 25,000 estimate number yields the following estimate of alerts per month:

Table 11-3 Estimated CMA Volume by Month

CMA Estimate Per Month	
January	658
February	273
March	3158
April	3123
May	2695
June	3802
July	3001
August	2473
September	2535
October	1786
November	1050
December	446
Total	25000

Note there is significant uncertainty in these estimates as one cannot predict "mother nature" or human activities. These estimates should only serve as guidelines to the anticipated message traffic in the CMAS.

12 Annex B – WARN Act Statutory Requirements

12.1 WARN Act Requirements

1. Transmission of emergency alerts via commercial mobile service is voluntary.
   a. Commercial mobile service operators may voluntarily elect to transmit emergency alerts {Sec. 602(a)}.

2. A commercial mobile service operator who elects to transmit emergency alerts agree to do so in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission.[17]

3. A commercial mobile service operator who elects to transmit emergency alerts can elect to transmit the emergency alert services in whole or in part.[18]

4. A commercial mobile service operator who elects in whole or in part NOT to transmit emergency alerts:
   a. Must provide clear and conspicuous notice at point-of-sale of any devices with which its commercial mobile service is included, that it will not transmit such alerts via the service it provides for the device.[19]
   b. Must provide notification of this decision to its existing subscribers.[20]
   c. Shall not by itself provide a basis for liability against the provider (including its officers, directors, employees, vendors, and agents).[21]

5. Commercial mobile service licensee may not impose a separate or additional charge for such transmission or capability.[22]

6. Any commercial mobile service licensee electing to transmit emergency alerts may offer subscribers the capability of preventing the subscriber's device from receiving such alerts, or classes of such alerts, other than an alert issued by the President.[23]

7. CMSPs who elect to transmit emergency alerts may transmit in languages in addition to English to the extent practical and feasible.[24]

8. Any CMSP (including its officers, directors, employees, vendors, and agents) that transmits emergency alerts and meets it obligations under this title shall not be liable to any subscriber to, or user of, such person's service or equipment for
   a. Any act or omission related to or any harm resulting from the transmission of, or failure to transmit, an emergency alert.[25]
   b. The release to a government agency or entity, public safety, fire service, law enforcement official, emergency medical service, or emergency facility of subscriber information used in connection with delivering such an alert.[26]

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[17] WARN Act § 602(b)(2)(B)(ii).

[18] WARN Act, §602(b)(1)(B). The Committee interprets the definition of "in whole or in part" to include the following: All or a subset of the mobile operator's service area and/or all or a subset of current and future mobile devices supported by the mobile operator network

[19] *Id.* §602(b)(1)(B).

[20] *Id.* §602(b)(1)(C)

[21] *Id.*, § 602(e)(2)

[22] *Id.* § 602(b)(2)(C) .

[23] *Id.* § 602.(b)(2)(E) & Sec. 603(c)(5).

[24] *Id.* § 603(c)(4)}

[25] *Id.* § 6022(e)(1)(A)}

[26] Id. § 602(e)(1)(B).

12.2 WARN Act Interpretations

12.2.1 CMSP Election

The WARN Act specifies the election process for a CMSP that elects to transmit CMAs as follows:

> 602(b)(2) ELECTION-
>
> (A) IN GENERAL- Within 30 days after the Commission issues its order under paragraph (1), each licensee providing commercial mobile service shall file an election with the Commission with respect to whether or not it intends to transmit emergency alerts.[27]

The above mentioned election process must be complete in September, 2008 as specified in the timelines in the WARN Act.

The CMAS requires new technology development and deployments, including development of mobile device functionality for CMAS and new mobile devices. The requirements for this new technology will not be available until the completion of the CMSAAC process and the completion of the FCC Report and Order in April, 2008 as specified by the WARN Act. Typical development cycles for a development of this magnitude require up to 12 months of standardization work in the appropriate standards bodies once the requirements are finalized followed by 18-24 months implementation and deployment before availability of the service and supporting mobile devices.

Thus, a CMSP that files an election with the Commission in September 2008 with the intent to transmit emergency alerts is making a commitment to support the development and deployment of technology for the following:

- "C" reference point
- CMSP Gateway
- CMSP Infrastructure
- Mobile Device with CMAS functionality and support of the CMSP selected technology

However, the technology, capabilities for deployment, and mobile devices may not be available for initial deployment and subscriber purchase potentially 12 months plus 18-24 months (approximately 30-36 months) following the CMSAAC recommendation, due to the required standardization and development cycles for the technology and capabilities of the mobile devices. Full deployments may not occur until a much later timeframe via a phased implementation.

[27] Id. §602(b)(2).

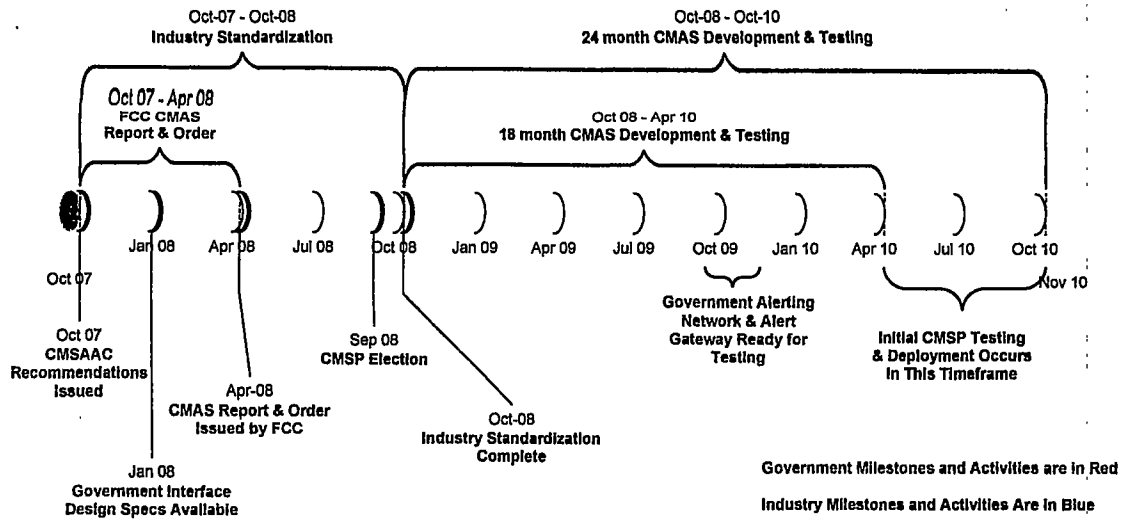

Figure 12-1 Potential Deployment Timeline

The above potential deployment timeline is based upon the assumptions that (1) the CMSAAC recommendations contained within this document are accepted without any major technical changes and (2) the government documentation and deliverables are available at the milestone dates indicated on the timeline. The industry will begin standardization efforts at the completion of the CMSAAC recommendations but any major technical changes to the CMSAAC recommendations will adversely affect the above potential deployment timeline.

There are factors outside of the CMSP's direct control that will influence the deployment and availability of CMA service. These factors include manufacturer development cycles for equipment in the CMSP infrastructure, manufacturer commitment to support the delivery technology of choice by the CMSP, and mobile device manufacturer development of the required CMAS functionality on the mobile devices. Typically, a CMSP will have equipment from multiple manufacturers deployed in the CMSP infrastructure. Multi-vendor environments require feature availability and deployment alignment, and require interoperability testing between the different manufacturers equipment. Also, if a CMSP chooses a particular technology to transmit alerts (e.g., cell broadcast), if a vendor with which a CMSP has a relationship chooses not to develop the same capability, then the CMSP may be forced into not electing to transmit alerts (at least not "in whole").

It is also assumed the requirements, development, and deployments of the Alert Gateway and Alert Aggregator align with the CMSP developments to allow for testing during the development process and prior to CMAS deployments.

12.3 Licensees and Permittees of Noncommercial Educations Broadcasting Stations or Public Television Stations

The WARN Act requires in section 602(c) that:

> Within 90 days after the date on which the Commission adopts relevant technical standards based on recommendations of the Commercial Mobile Service Alert Advisory Committee, established pursuant to section 603(a), the Commission shall complete a proceeding to require licensees and permittees of noncommercial educational broadcast stations or public broadcast stations (as those terms are defined in section 397(6) of the Communications Act of 1934 (47 U.S.C. 397(6))) to install necessary equipment and technologies on, or as part of, any broadcast television digital signal

> transmitter to enable the distribution of geographically targeted alerts by commercial mobile service providers that have elected to transmit emergency alerts under this section.[28]

This Committee acknowledges the potential relevance of the rulemaking described in section 602(c) of the WARN Act to this Committee's recommendations. Accordingly, the Committee recommends that the equipment and technologies described in Section 602(c) of the WARN Act be deployed promptly and in a manner consistent with the Committee's recommendations. The Committee further recommends that the national organization representing the licensees and permittees of non-commercial broadcast stations work with the FCC pursuant to Section 602(c) on the necessary equipment.

[28] *Id.* §602(c).